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(FILE 'HOME' ENTERED AT 09:54:52 ON 02 MAR 2002)

FILE 'USPATFULL' ENTERED AT 09:55:02 ON 02 MAR 2002

L1 2171 S LEARN?(3A)MODE#
L2 107 S SECUR?(P)L1
L3 2618491 S AD<=19970925 OR RLD<=19970925
L4 94 S L2 AND L3
L5 39454 S 380/?/NCL OR 709/?/NCL OR 713/?/NCL OR 711/?/NCL OR 717/?/NCL
L6 21 S L4 AND L5
L7 3224 S MONITOR?(8A) (READ? OR WRIT? OR ACCESS?) (8A) (NUMBER OR TIME# O
SET HIGH OFF
L8 922838 S SECUR?
SET HIGH ON
L9 947 S L8 AND L7
L10 157 S L5 AND L9
L11 114 S L3 AND L10
L12 187 S LEARN?(8A)PROFIL?
L13 60 S L8 AND L12
L14 37 S L13 AND L3

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L6 ANSWER 4 OF 21 USPATFULL

TI Secure self learning system

PI US 6166650 20001226

AI US 1997-868131 19970603 (8) <--

RLI Continuation-in-part of Ser. No. US 1994-313613, filed on 30 Sep 1994, now patented, Pat. No. US 5686904

RLI which is a continuation-in-part of Ser. No. US 1992-985929, filed on 4 Dec 1992

RLI which is a continuation-in-part of Ser. No. US 1991-707101, filed on 29 May 1991, now abandoned

AB A method and system for the remote control of devices having a **secure** self learn capability. The system includes an encoder and a decoder, the encoder encoding variable information including a user key using a non-linear algorithm to produce an encoded value transmitted to the decoder, the decoder decoding the value using the same algorithm. In a **learning mode** a new encoder is to be added to the system. The new encoder produces an encoded value using a key generation seed. The decoder, upon receiving the encoded key generation seed, produces a decoding key based upon the decoded key generation seed. The decoding key is stored in the decoder memory allowing valid recognition of the new encoder in a **secure** manner.

SUMM In self learning fixed code systems, the incoming code is stored for future references by the decoder when it is in a **learning mode**. Subsequent transmissions are compared with the learned code. Different arrangements to learn new transmitter codes are used. A switch can be used to set the decoder either in a normal operation **mode** or in a **learning mode** (U.S. Pat. Nos. 4,750,118 and 4,912,463). In the **learning mode**, the decoder can **learn** new valid codes from a transmitter. Similar means are used (refer to U.S. Pat. Nos. 4,931,789 and 5,049,867) to program the decoders to react to a new transmitter code. In another patent (refer to U.S. Pat. No. 5,148,159), a randomly selected fixed code is generated by the decoder and programmed into the associated transmitter. U.S. Pat. No. 4,855,713 describes the use of a hand held programmer to program the new fixed code to be recognized by the decoder. In all of these patents, the transmitted or programmed codes are fixed stored codes. **Security** threats by means of code grabbing or code generation still exist irrespective of the learning mechanisms employed. In addition, for these systems to learn, the user has to either (1) use a cumbersome, more expensive, two switch system; and/or (2) the user has to set the receiver/decoder in **learning mode** via (a) a switch inconveniently physically located on the receiver/decoder which can be very difficult (if not impossible for elderly or handicapped persons) to activate once the system, e.g., a receiver of a garage door opening system, is installed, e.g. on the ceiling of a user's garage (See FIG. 1 of U.S. Pat. No. 4,750,118), (b) a code sent by the transmitter--activation and use of such can be complicated and not **secure** if the transmitter is lost or worse stolen, or (c) a code sent by a separate programming means which can be complicated to use and likewise not **secure** if the programming means is lost or worse stolen.

SUMM In one embodiment of the invention, an encoder learning capability is implemented. This allows a user to replace an encoder or add an encoder to be recognized by a decoder which has a **learning mode** function, selectable by the user. The **learning mode** function can be selected by activating it on the decoder. This can, be accomplished by using a normal encoder and programming the output function to set

L6 ANSWER 18 OF 21 USPATFULL
TI Micro-personal digital assistant including a temperature managed CPU
PI US 5721837 19980224
AI US 1996-756049 19961015 (8) <--
RLI Continuation of Ser. No. US 1994-365282, filed on 28 Dec 1994,
now abandoned
RLI which is a continuation-in-part of Ser. No. US 1993-144231, filed on
28 Oct 1993
RLI And a continuation-in-part of Ser. No. US 1994-234344, filed on 28
Apr 1994, now patented, Pat. No. US 5502838
DETD FIG. 13 is a plan view of a .mu.PDA 310 with an IR interface 94
according to an embodiment of the present invention. In this embodiment
the .mu.PDA may communicate with an array of conventional appliances in
the home or office for providing remote control. Unique signals for the
appliances are programmed into the .mu.PDA in a **learning**
/receive **mode**, and filed with user password protection. Once a
correct password is entered, an icon-based menu is displayed on I/O area
316 in a user-friendly format. A master routine first queries a user for
which device to access. For example, in a residential application, icons
are displayed for such things as overhead garage doors, **security**
systems, automatic gates, VCRs, television, and stereos.
NCL NCLM: 710/303.000
NCLS: 713/322.000